CLAIMS

1. A loudspeaker for acoustic enclosure, in particular a tweeter or a medium-frequency loudspeaker, characterized in that it comprises, as its "dome," a spherical membrane or diaphragm 2 with direct radiation, with a front side that is concave in relation to spool 3 and to which is preferably attached, at a certain level of Plane A-B, for example at mid-height or approximately at mid-height, the moving spool so as to achieve an optimal mechanical coupling capable of reproducing frequencies lower than 1 kHz with a high efficiency.

2. The loudspeaker according to Claim 1, wherein the low resonance frequency is adjustable by using a mounted S suspension with high compliance, that is to say, made of a highly flexible material such as foam rubber or soft joints made of rubber, or gluing that remains "soft" over time.

3. The loudspeaker according to Claim 1 or 2, wherein the material of the dome is pure beryllium.

4. The loudspeaker according to Claim 1 or 2, wherein the material of the dome is selected from among Be alloys, in particular Be/Al alloys, in particular 20-80% Be by weight / 80-20% Al by weight, preferably 40-60% Be / 60-40% Al, in all cases with at least 5% by weight of Be.

5. The loudspeaker according to Claim 1 or 2, wherein the material of the dome is made of materials selected from among aluminum or aluminum alloys, in particular Al/Be alloys according to Claim 3.

6. The loudspeaker according to Claim 1 or 2, wherein the material of the dome is selected from among magnesium and its alloys with aluminum, in particular the alloy Al 5056 , which is an aluminum alloy containing approximately 5% magnesium.

7. The loudspeaker according to Claim 3, wherein the diaphragm is made of pure Be and has a thickness from 25 to 100 microns, in particular one equal to 25 microns, and preferably a thickness of less than 30 microns for a typical tweeter dome 25 mm in diameter and 3 to 6 mm deep and a spool 15 to 20 mm in diameter.

8. The loudspeaker according to Claim 3, wherein for a medium-frequency loudspeaker of 100 mm in diameter, the diaphragm made of pure Be can reach up to 500 microns of thickness for the dome.

9. The loudspeaker according to any of Claims 1 through 8, wherein the shape of the dome can be hemispherical or with a complex profile, oval, bulbous, or with canted sides.

10. The loudspeaker according to any of Claims 1 and 3 through 9, wherein it comprises a "monobloc" dome.

11. The loudspeaker according to any of Claims 1 through 3 and 7 through 10, wherein with a diaphragm made of pure Be, the high-frequency response is extended to over 40 kHz.

12. The loudspeaker according to any of Claims 1 through 3 and 7 through 11, wherein it comprises an emitter point source with direct radiation and low directivity, with a passband of over 5 octaves from 1 kHz to 40 kHz with a high efficiency of over 92 dB/1W/1m.

13. A diaphragm manufacturing process involving the forming of thin metal sheets made of metals or alloys described according to any of Claims 1 through 12, for manufacturing tweeter or medium-frequency loudspeaker domes, wherein the sheet rests on the side supports of a footprint, said sheet is deformed by a gas pressure applied at room or near-room temperature to one of its sides, said pressure effect is then used to apply the second side of said deformed sheet onto a mold that reproduces the 3D geometry ("footprint") of the piece to be produced, and finally said mold is

brought to a high temperature during the time necessary for forming said sheet without any physico-chemical degradation.

14. A sheet metal forming tool for manufacturing pieces with a given 3D geometry, for the implementation of the process according to Claim 13, wherein it comprises an upper matrix consisting of at least one pressurized gas injection nozzle and a lower mold (by convention, the tool shall be considered as horizontal) whose upper side reproduces the 3D footprint of the piece to be formed and which has a means for heating its mass.

15. The process according to Claim 13, wherein the starting thickness of the sheets made of beryllium (or Al or aluminum alloys, and optionally beryllium alloys, in particular Be/Al alloys) is between 10 and 500 microns, in particular between 20 and 100 microns, and even better is on the order of 25 to 50 microns.

16. The process according to Claim 13 or 15, wherein the gas injected by the nozzle(s) is either air or nitrogen.

17. The process according to any of Claims 13, 15 or 16, wherein the pressure of said gas shall be between 10 and 30 bars, preferably between 15 and 25 bars, for a dome diameter of less than 50 mm, in particular: shall be approximately 20 bars for a beryllium sheet 25 microns thick and approximately 15 bars for an aluminum sheet 25 microns thick.

18. The process according to any of Claims 13, 15, 16, 17, wherein the mold is brought to a temperature on the order of 100 to 400°C for sheets made of aluminum or magnesium or their alloys, on the order of 700 to 1000°C for a sheet made of beryllium or its alloys, in its mass, for example by means of a heating element placed underneath or around said mold, said temperature being on the order of 900°C for a pure beryllium sheet 25 microns thick.

19. A dome for a loudspeaker for an acoustic enclosure, in particular for a tweeter or for a medium-frequency loudspeaker, wherein it is such as is described according to any of Claims 1 through 12 or manufactured using the process according to any of Claims 13 through 18.

20. An acoustic enclosure, wherein it comprises at least one loudspeaker according to any of Claims 1 through 12 or a dome according to Claim 19.